

ABSTRACT OF THE DISCLOSURE

A polymer electrolyte membrane fuel cell stack having a plurality of substantially planar fuel cell units, each of which comprises an anode electrode, a cathode electrode and a polymer electrolyte membrane disposed between the anode electrode and the cathode electrode. A metal bipolar plate is disposed between the anode electrode of one fuel cell unit and the cathode electrode of an adjacent fuel cell unit. The metal bipolar plate is made of a chromium-nickel austenitic alloy having a nitrogen content of zero, in which the chromium and the nickel, on a combined basis, make up at least about 50% by weight of the alloy.